REMARKS

In response to the Official Action of January 12, 2006, claim 7 has been amended in a manner which is believed to particularly point out and distinctly claim the invention and so as to distinguish the invention over the Applicant's Admitted Prior Art (AAPA).

Specifically, referring now to paragraph 3 of the Official Action, claims 7, 9, 12 and 13 are rejected under 35 U.S.C. §102(b) as anticipated in view of AAPA. It is specifically noted that with regard to claim 7, the Office asserts that the AAPA discloses transmitting a request for configuration information from a first network element (xDSL switch 111 in Figure 1) located on a first hierarchical level (level 2) toward a second network element (network managing station 131) on a second hierarchical level (level 4). It is further asserted that the second hierarchical level is above the first hierarchical level. The Office further asserts that the AAPA shows deciding at the managing station whether it is appropriate to read the configuration information requested in the request for configuration memory of the managing station, this configuration memory being database 132. It is then asserted that the AAPA, although not explicitly teaching, does inherently show that the managing station receives the request and checks the source of the request and any error in the request and thereby determines whether the request is appropriate or not and, if so, reading the configuration information from database 132.

It is noted in the Background of the Invention section of the present application that traditionally the only locations for storing network configuration data for each individual piece of equipment is in the network managing system (NMS) and the device itself and that the device is passively commanded by the NMS. In contrast, in the present invention the configuration data is stored hierarchically throughout the network so that each device at any level can also store the configuration data for itself and any device below it and any device can initiate configuration change for itself or for a device below it. Thus, in the present invention, any device at any hierarchical level can be seen to be something akin to an NMS for anything below it. This

architecture allows the hierarchy to be changed, reconfigured and rebuilt easily. This is very important in very high data rate DSL (VDSL) as fiber to the curb (FTTC) systems can add several layers of hierarchy. In the AAPA the configuration changes only go downward from the NMS to devices and always directly to the device (never in a hierarchical fashion to nodes at hierarchical levels between the NMS and the device, even if connections would be hierarchical).

Traditionally, for example, in Simple Network Management Protocol (SNMP) managed networks, the NMS would send SNMP requests to a device, such as device 101 shown in Figure 1, but not through 111 or 121 and device 101 would never send a request to the NMS as device 101 just listens to SNMP commands and acts according to them.

In the present invention, configuration change can be initiated from the lower level device, as well as the NMS. For example, a device at level 1, 2 or 3 as shown in Figure 1 could initiate a configuration change in the present invention. For example, an end user might change the configuration for a device 101 wherein in a traditional system the configuration change to the device 101 needs to be done by the NMS which would then send it to device 101. Any configuration changes made directly in device 101 would not automatically propagate to the NMS but would require the same configuration to be updated to the NMS usually by human intervention through copying the configuration information over or repeating the change at the NMS. In the present invention, this process is done automatically and can happen either hierarchically through all nodes between the device and the NMS or directly to the device or any mix therebetween.

This aspect of the present invention is important in advanced network topologies where some configuration information is simply not known to the NMS or the network designers, but is generated by the devices at the lower level. For example, during crosstalk analysis between copper lines, information is required from the DSL modems, which information is only generated by the modems themselves (the modem is embedded as part of the xDSL switch). This information is combined to minimize crosstalk noise which could be done at the xDSL switch 111 or the xDSL

switch 121 as shown in Figure 1. It would inefficient and would not scale if information had to be sent to the NMS and to combine it there. Thus, an advantage of the present invention is that configuration change can propagate upward from said device 101 either directly to NMS 131 or indirectly by making update requests to devices such as xDSL switch 111 which in turn would transfer it upward to the NMS 134 either directly or through another node such as the xDSL switch 121. This architecture also works if the connection to the NMS is temporarily broken at any given connection such as connections 107 or 114. Since the configuration update travels upwards as long as it can propagate and is stored there at that hierarchical level, it remains there and is available to the NMS or device above it is when communication is re-established. If any device fails or replaced, the same process still occurs. This makes the network more robust to failures than traditional networks.

Thus, the system according to the present invention is able to recover from a failure more rapidly than traditional systems as the configuration data may be obtained from the nearest node with no need to obtain the information from the NMS system which could possibly be further away in the hierarchical architecture. This thereby greatly reduces the load on the NMS. In case of a major failure, the NMS, in a traditional system, receives a large number of configuration information requests. In the present invention, the configuration information requests goes to the nearest device above the requester and it replies directly to the requesting device. This thereby reduces the load on connections on hierarchical levels closer to the NMS.

In view of the above considerations, claim 7 has been amended to particularly point out and claim that the transmitting a request for configuration information from a first network element located on a first hierarchical level toward a second network element located on a second hierarchical level, which second hierarchical level is above the first hierarchical level in an xDSL network, further requires that the second hierarchical level is at least more than one level higher than the first hierarchical level if the second network element is a network managing station associated with said xDSL network.

Furthermore, claim 7 has been amended to recite that if the second network element is the network managing station, the configuration information is communicated to the first network element through a node at a hierarchical level between said second hierarchical level and said first hierarchical level. Thus, although in the AAPA the NMS can read configuration information requested in the request for configuration information from a configuration memory of the second network element, the AAPA does not disclose or suggest that if the second network element is the network managing station that configuration information is communicated to the first network element through a node at a hierarchical level between said second hierarchical level and said first hierarchical level. Support for this amendment is found in the original application, including page 10, line 1 through page 12, line 7.

Thus, it is respectfully submitted that claim 7 as amended is not anticipated by the AAPA and, for the reasons presented above, would not be suggested by the AAPA.

With regard to claims 9 and 12, the Office asserts that the AAPA discloses such a system or method for an xDSL network management, again referring to Figure 1 of the present application and specifically referencing a first hierarchical level (level 3) receiving a command from a managing station (131) for changing a piece of configuration information that pertains to a second network element (xDSL switch 111) on a second hierarchical level (level 2) which second hierarchical level is below the first hierarchical level in the xDSL network. It is thus asserted by the Office that the xDSL switch 121 receives a command for changing configuration information pertaining to an xDSL switch 111 from the managing station 131.

It is respectfully submitted that this would not happen in the AAPA as configuration information pertaining to network element 111 is not stored in xDSL switch 121. In a traditional system according to the AAPA, the configuration information is stored in the network element itself (xDSL switch 111) and the NMS 131.

Thus, it is respectfully submitted that method claim 9 which specifically recites that at a certain first network element that is other than the network managing station

and which is located on a certain first hierarchical level receiving a command for changing a piece of configuration information that pertains to a second network element that is located on a certain second hierarchical level, which second hierarchical level is below the first hierarchical level in the xDSL network, and storing said piece of configuration information at a configuration memory of the first network element in a form that results from executing said received command, is not taught by or suggested by the AAPA, since a first network element (such as xDSL switch 111) at a certain first hierarchical level does not in the AAPA store said piece of configuration information at a configuration memory of said first network element in a form that results from executing the received command. Therefore, claim 9 is believed to be allowable.

Independent claim 12 recites a first network element of an xDSL network where the first network element is other than a network managing station and recites structural elements which are similar to method claim 9. For similar reasons, claim 12 is believed to be neither anticipated nor suggested by the AAPA.

Finally, referring to independent claim 13, it is asserted by the Office that this claim is anticipated by the AAPA with reference to the network elements 101-106 and 111-113 of Figure 1. It is respectfully submitted however that the AAPA does not disclose or suggest claim 13 since claim 13 particularly points out and claims that the first network element is arranged to store configuration information pertaining to at least one xDSL network element that is located on a lower hierarchical level in the xDSL network, which upon receiving a command from said at least one xDSL network element, stores said configuration information in a form that results from executing the command.

In a traditional system such as that of the AAPA, any element does not store configuration information pertaining to any other element, but only the element itself and the NMS have a copy of the configuration information. Thus the AAPA does not disclose or suggest an xDSL network wherein a number of network elements other than the network managing station are arranged to store configuration information pertaining to other of said network elements that are located on lower hierarchical

levels in the xDSL network than the number of said network elements at which configuration information is stored. Therefore, for similar reasons presented above with regard to claim 9, claim 13 is believed to be allowable.

Regarding paragraph 4 of the Official Action, it is noted that claims 1-6, 8 and 11 are allowed and that claim 10 is objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims. With respect to claim 10, it is respectfully submitted that amendment is not necessary since for the reasons presented above, claim 9 from which it depends, is believed to be allowable.

In view of the foregoing, it is respectfully submitted that the present application as amended is in condition for allowance and such action is earnestly solicited.

Respectfully submitted,

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